Role of GIS in Watershed Management

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Understanding GIS (1)

- What did you do to reach **this Academy**?
- How you have made your plans?
  + Select certain mode of transport and finding the **Routes to reach Nimora**, Answers what/where and how to reach
  + **Reaching destination** (Academy) from Source (District Hq/Block Hq/House) answering locating Nimora (what), finding it’s distance (where) and reaching destination (optimum path)
Understanding GIS (2)

- **Changes** in a period of time
- Pattern of relationship
  - Advances in IT and patterns of human life
  - Agricultural practice patterns over the times (Example of AP delta regions – single crops before independence, changed to double crops with Nagarjunsagar reservoir. Again changed to prawn culture, mainly due to higher income returns)
Meaning of GIS (1)

GEOGRAPHICAL INFORMATION SYSTEM
GEOGRAPHY

The science of Earth’s physical features, resources, climate, population etc.
Overview and Concepts of GIS

GEOGRAPHY = Geo + Graphy

What & Where

Location is important
Overview and Concepts of GIS

INFORMATION
OVERVIEW AND CONCEPTS OF GIS

Explaining Meaning of GIS (1)

How we derive information?
OVERVIEW AND CONCEPTS OF GIS
OVERVIEW AND CONCEPTS OF GIS

Descriptive

Graphical
Overview and Concepts of GIS

SYSTEM
OVERVIEW AND CONCEPTS OF GIS
What is the specialty of GIS?

- Facilitates faster process of operations
- Provides solution for many real world problems with options of many scenarios
- Decision making tool with the support of organized data
- Integrating technology
- Dynamic map display and interactive query
Overview and Concepts of GIS

Technologies that support GIS

- Remote Sensing
- Photogrammetry
- Cartography
- Positioning technology
- Geodesy/Surveying /Mapping
- Geo-ICT
Describing our World

We can describe any element of our world in two ways:

Location Information: *Where is it?*
51°N, 112°W

Attribute Information: *What is it?*
Species: Teak
Height: 15m
Age: 75 Yrs
HOW IT WORKS?

- A Powerful tool for solving real-world problems

- A method to visualize, manipulate, analyze, and display spatial data
MANY THEMES AS LAYERS
RASTER - VECTOR Data Models
### WHAT GIS CAN DO?

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<th>Real world problems</th>
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<td>Identification</td>
<td>Where?</td>
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<td>Locate</td>
<td>What is there?</td>
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<td>Optimum path</td>
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TYPES OF GIS

- Desktop GIS
- Professional GIS
- Enterprise GIS
- Mobile GIS
- Internet GIS
- Embedded GIS
- 4 D GIS
- Multimedia GIS
WHAT ANALYSIS GIS CAN DO?

- SIMPLE QUERY
- SPATIAL QUERYING
- SINGLE LAYER OPERATION
- MULTIPLE-LAYER OPERATIONS
- SPATIAL MODELING
- SURFACE ANALYSIS
- NETWORK ANALYSIS
- POINT PATTERN ANALYSIS
- GRID ANALYSIS
WATERSHED CODE 4G2G6A5
CHINNOR HATKUL

BASIN MAHANADI

CATCHMENT HIRAKUND DAM TO CONFLUENCE WITH SEONATH

SUBCATCHMENT UPPER MOST MAHANADI

STATE CHHATTISGARH

DISTRICT KANKER

TAHSIL KANKER
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SLOPE

Legend

0 - 1
1 - 3
3 - 5
5 - 10
10 - 15
15 - 35
35 - 50
50 - 70
> 70

Slope in percent

Kilometers
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GEOMORPHOLOGY

Pediplain Shallow
Structural Hills
Pediment
Denudational Hills
Pediment
Pediment
Denudational Hills
Structural Hills
Inselberg
Residual Hills
Pediment
Linear / Curvilinear Ridge
Inselberg
F44V08C µ
0 0.8 1.6 2.4
Kilometers

HIRAKUND DAM TO CONFLUENCE WITH SEONATH
Legend

kan_wrdp_arc
DE SC

- NO ACTION PROPOSED
- CEMENT NALA BUND
- CHECK DAM
- CHECK DAM & NALA BUND
- MASONARY BANDHARA
- NALA BUND
- PERCOLATION TANK
- UNDER GROUND BANDHARA
ASSET MAPPING
Drainage, River, Water Body  
Total 5040 10K Sheets  
Completed and Submitted
Infrastructure Layer

Roads

3101 10K Sheets Completed
Land cover Total 5040 10K Sheets
Completed 1285 10K Sheets
THANK YOU